

PATENT COOPERATION TREATY

From Japanese Patent Office
(INTERNATIONAL SEARCH AUTHORITY)

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| To: HAYASE, Kenichi HAYASE & CO. 13F, NISSAY SHIN-OSAKA Bldg., 3-4-30, Miyahara, Yodogawa-ku, Osaka-shi, Osaka 532-0003 JAPAN | PCT WRITTEN OPINION OF THE ISA (PCT Rule 43bis) |
| | Date of Mailing 10 August 2004 |

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| Applicant's or agent's file reference P34675-P0 | | See item 2 below for the subsequent procedure | |
| International application No. PCT/JP2004/005991 | International filing date 26 April 2004 | Priority date 25 April 2003 | |
| International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ H01L27/105, H01L 27/108, H01L 21/8242 | | | |
| Applicant Matsushita Electric Industrial Co., Ltd. | | | |

1. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 43.2.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

OMISSION(2 and 3)

Date of completion of this opinion

26 July 2004

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|--|--------------------|
| Name and mailing address of the ISA/JP Japanese Patent Office | Authorized officer |
| | Telephone No. |

I . Basis of the opinion

1. This opinion has been drawn on the basis of the language of international application, unless otherwise indicated below.

OMISSION(2, 3 and 4)

IV. Lack of unity of invention

1. In response to the invitation to pay additional fees the applicant has:

☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☒ not complied with for the following reasons:

Document 1: JP 2000-349248 A (Sony Corporation) 2000.12.15

Document 2: JP 2000-294743 A (Matsushita Electronics Corporation)
2000.10.20

Document 3: JP 2001-7303 A (Toshiba Corporation) 2001.01.12

In order that a group of inventions as claimed in Claims fulfills the requirement of unity, the existence of special technical features to link the group of inventions as to form a single general inventive concept is required, while a group of inventions as claimed in Claims 1 to 15 are recognized to be linked only in a matter of "a ferroelectric memory device having plural memory cells each being composed of a memory cell transistor and a memory cell capacitor, wherein said respective memory cell capacitor comprises: a lower electrode that is connected to a bit line via the memory cell capacitor, a ferroelectric layer that is formed on an upper surface of the lower electrode, and an upper electrode that is formed on an upper surface of the ferroelectric layer, said lower electrode of the respective memory cell capacitor is independent from the other lower electrodes for each of the memory cell capacitors, and said upper electrode of the respective memory cell capacitor constitutes a plate electrode that is common to the plural memory cell capacitors". This matter, however, is described in Document 1 (particularly in Fig. 3 and descriptions of the figure), Document 2 (particularly in Fig. 7 and descriptions of the figure), and Document 3 (particularly in Fig. 2). Therefore, this matter cannot be considered as the special technical features.

Accordingly, it means that the group of inventions as claimed in Claims 1 to 15 does not have the special technical features to link these inventions so as to form a single general inventive concept. Thus, it is apparent that the group of inventions as claimed in Claims 1 to 15 does not fulfill the requirement of unity of inventions.

4. Consequently, the following parts of the international application were the subject of written opinion:

☒ the parts relating to Claims Nos. 1-4

TRANSLATION of related part of Form PCT/ISA/237

WRITTEN OPINION OF THE ISA

International application No.
PCT/JP2004/005991

V Reasoned statement under Rule 43,2.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

| | | |
|-------------------------------|-------------|-----|
| Novelty (N) | Claims 2-4 | YES |
| | Claims 1 | NO |
| Inventive Step(IS) | Claims NONE | YES |
| | Claims 1-4 | NO |
| Industrial Applicability (IA) | Claims 1-4 | YES |
| | Claims NONE | NO |

2. CITATIONS AND EXPLANATIONS

Document 1: JP 2000-349248 A (Sony Corporation) 2000.12.15
 Document 2: JP 2000-294743 A (Matsushita Electronics Corporation)
 2000.10.20
 Document 4: JP 2000-138349 A (Sharp Corporation) 2000.05.16

The invention as defined in Claim 1 does not involve the novelty nor the inventive step over Documents 1 and 2. In Fig. 3 of Document 1 and Fig. 7 of Document 2, a structure in which an upper electrode forms a plate electrode that is common to plural memory cell capacitors and the width of the upper electrode is narrower than the width of the ferroelectric layer is shown.

The inventions as defined in Claims 2 to 4 do not involve the inventive step over Documents 1, 2 and 4. Section [0038] and Fig. 1 of Document 4 describes a structure that is almost the same as the one in which the lower electrode has a width that is narrower than the width of the ferroelectric layer, and is almost the same as the width of the upper electrode. Further, the positional relationship of widths between the upper electrode and the lower electrode is a matter that should be properly adjusted by persons skilled in the art.